

SARCOPHAGID FLIES PARASITIC ON REPTILES¹

(DIPTERA, SARCOPHAGIDAE)

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The genus *Cistudinomyia* Townsend (1917) is based on *Sarcophaga cistudinis* Aldrich (1916), a species which has been reared only from land turtles in eastern North America. Until now it has been the only sarcophagid known to parasitize reptiles, at least in North America.

The recent discovery of a second species parasitic on reptiles is credited to Dr. James A. Oliver, who sent larvae from a subcutaneous lesion on an American chameleon, *Anolis carolinensis* Voight, to Mr. C. W. Sabrosky in 1952. Mrs. Doris H. Blake was the first to rear the adult. She found a parasitized American chameleon in October, 1953, from which she reared a pair of flies, presumably of the same species, on December 1, 1953. These she brought to Mr. Sabrosky for determination, and he transmitted them to the writer.² Aside from host relationships, broad male front, and fourth abdominal segment reddish, this species differs markedly from *cistudinis* and appears to represent a new genus and species.

Anolisimya, new genus

This new genus may be separated from other genera of Sarcophagidae known to the writer by the combination of the following characters: hind coxa pilose posteriorly, propleuron pilose, prosternum and postalar declivity bare, three posterior dorsocentral bristles, anterior acrostichals absent, and male mid femoral comb and hind tibial villosity lacking. The absence of spiracle 7 in the female is also unusual. Other characters are as described and figured for *A. blakeae*, the genotype, which follows:

Anolisimya blakeae, new species

(Figs. 1, 2, 3, 4, 5, 6, 7)

A small species with legs, base of antennae, abdominal segment 4 and epaulets reddish. In Aldrich (1916) it keys, together with *Sarcophaga ignipes* Reinhard, to couplet 3 of Group D. Both differ from the species included by Aldrich by the legs being entirely reddish, the absence of outer vertical bristles, and other characters. It differs from *ignipes* by the bare prosternum, the anterior acrostichal bristles absent, and in characters of the genitalia. In volume 2 of Townsend's "Manual of Myiology" (1935), the male keys to *Fletcherimya* and *Eufletcherimya* but does not agree with the key characters of either, since the propleuron is pilose but the prosternum bare; the female runs to *Fletcherimya* (type *Sarcophaga fletcheri* Aldrich), but has very different genital sternites. Female *fletcheri* has the first genital tergite broad and precipientous, shield-shaped.

Male.—Length 6.8 mm.; body greyish, with legs and 4th visible segment of abdomen reddish.

¹From the Communicable Disease Center, Public Health Service, U. S. Department of Health, Education, and Welfare, Savannah, Georgia.

²See Mrs. Blake's note, this issue.—Ed.

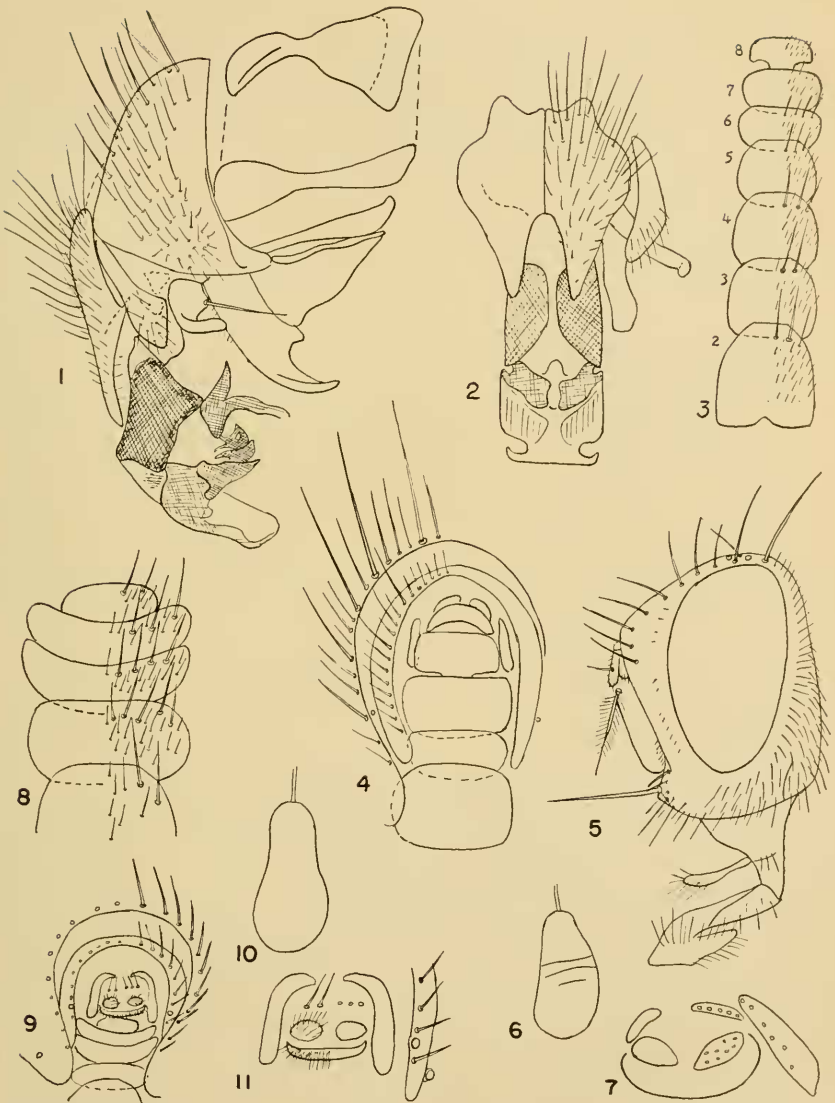
Head (Fig. 5) greyish, with two postocular rows of black setae, the rest of the occiput and metacephalon clad with pale hairs; outer vertical and proclinate fronto-orbital bristles absent; front broad, 0.24 of head width, frontal rows of about nine bristles, moderately divergent anteriorly; antenna reddish, the apical half of the third segment darkened; arista with short basal segments, third segment thickened on basal two-fifths, long plumose over two-thirds its length; parafacial and parafacial areas nearly bare, each with about six very fine setules; clypeus dished; epistoma warped forward; vibrissae slightly above the epistoma; facial ridges bare except adjacent to the vibrissae; cheeks clad with dark hair, nearly a third as wide as the eye height; palpus reddish; haustellum shorter than the third antennal segment. Head about two-thirds as long as high, the vibrissal axis somewhat shorter than the antennal axis.

Thorax grey, with three dark stripes and no submedian prescutal markings. Chaetotaxy: acrostichals 0:1; dorsocentrals 2:3; intraalars 1:2; supraalars 1:3; humerals 2; notopleurals 4, the first and third very small; sternopleurals 3; scutellars: two marginal, one dorsal preapical, no apical.

Abdomen grey, the fourth segment reddish, abdominal markings a changeable pollinose pattern, not strongly set forth, with elongate oval, median dark spots on the intermediate segments when viewed from behind. Median marginal bristles on third segment; a marginal row on the fourth; first genital segment with an interrupted marginal row of 6. Genital segments (Figs. 1, 2) yellowish, of medium size, the first slightly larger, the second with only bristly hairs, cleft to its basal sixth by the perianal membrane. Spiracle 6 in membrane before the first segment; spiracle 7 on the segment. Forceps yellow basally, the apices darker, straight, well-separated, tapered to blunt tips. Accessory plate yellow, with a triangular apical free portion and slender basal portion. Claspers yellow, subequal in length and size, the posterior pair divergent, slender and curving beyond the large subbasal bristle, the anterior pair nearly parallel in ventral view, with apices somewhat flattened and twisted. Penis apparently of three segments, subequal in length, the basal stalk yellow, more slender than the others, completely sclerotized; the distal segments mostly darkened but with considerable membranous areas at the joint and the apex flattened, brownish. Anteriorly the distal segment bears at its base a pair of disk-shaped black lobes which are wedge-shaped in lateral view and which connect by a pair of small, black sclerites to the anterior process, which spans the distal two segments and encloses a rather large, triangular membranous area, as seen in lateral view. The anterior process has a median tongue-shaped body with six coarse serrations in its apical margin and a pair of divergent arms with tips incurved, arising from near its base. Fifth sternite yellow, with divergent, flattened arms and a median pair of pads with sparse setules but no bristles.

Wings hyaline, with dark brown veins; costal spine vestigial; costal segments 1 to 6, respectively, 2.6/4.7/2.5/6.5/3.5/3; vein 1 bare; vein 7 with 7-8 setules reaching nearly to the anterior cross vein above and two setules below; epaulet reddish; squama bare, white, with a small, brownish, median cloud. (The posterior cross vein of each wing bears a small spur vein directed towards the body; however, this is considered to be a mutant character.)

Legs reddish, including the coxae and the bases of the tarsi, but the latter are



Anolisimya blakeae, n. sp.: fig. 1, male genital composite, lateral view; fig. 2, male genital composite, posterior view; fig. 3, female abdominal sternites 2-8, ventral view; fig. 4, female genitalia, ventral view; fig. 5, male head, lateral view; fig. 6, female spermatheca; fig. 7, female cerci and environs, postero-ventral view.

Cistudinomyia cistudinis (Aldrich), female: fig. 8, sternites 4-8; fig. 9, genital segments, postero-ventral view; fig. 10, spermatheca; fig. 11, cerci and environs, postero-ventral view.

darkened apically. Femora and tibiae non-villous; middle femur without comb; middle tibia with two anterodorsal and no anteroventral bristles.

Female.—Length 6 mm. Outer vertical bristle absent, as in the male; proclinate fronto-orbitals 2; front 0.29 of head width; chaetotaxy of thorax and legs identical to the male except that the middle tibia bears one anterodorsal and an anteroventral bristle at the middle of its length. Palpi, squamae and coloration identical to the male. Posterior cross veins without spur veins.

Genital segments (Figs. 4, 7) reddish, concealed from above; sternites 6-8 simple, oval, setulose, not intimately fused; sternite 9 lacking; sternite 10 subtriangular, setulose; there are no thickened areas in the bursa copulatrix. First genital tergite a narrow, inverted U-shaped band, pollinose, setulose, with a marginal row of numerous small bristles, not constricted or divided mid-dorsally; second genital tergite represented by a pair of lateral setose plates opposite the cerci, which latter appear to be divided, the dorsal portion bearing the coarsest setae. Spermathecae 3, each oval, with 2-3 wrinkles at about its middle. Spiracle 6 in the membrane; spiracle 7 apparently absent (no spiracles can be distinguished on the first genital tergite).

Puparium.—Length 6-6.5 mm.; dark brown, cylindrical, with posterior spiracles set in a deep concavity.

Holotype ♂ and allotype ♀, Wilmington, North Carolina, reared ex chameleon, December 1, 1953, Doris Blake, collector. Deposited in the U. S. National Museum, Type Number 62300.

Cistudinomyia cistudinis (Aldrich)

(Figs. 8, 9, 10, 11)

Sarcophaga cistudinus Aldrich, 1916, *Sarcophaga* and Allies, p. 278; Knipling, 1937, Proc. Ent. Soc. Wash. 39:91-101.

Cistudinomyia cistudinis Townsend, 1917, Proc. Biol. Soc. Wash. 30:48.

Concerning this species, Knipling (1937) has given a very good account, with eight references, and described and figured the larvae in all instars. He recorded it as parasitizing *Gopherus polyphemus*, *Chrysemys picta*, *Terrapene* sp. and *Testudo* sp. Efforts to rear it in an alligator, goats or sheep, and dead fish were unsuccessful.

Female genitalia.—(Figs. 8, 9, 10, 11). Genital segments in posteroventral position, concealed from above, yellow, pollinose. First genital tergite inverted U-shaped, less than half as long as the fourth tergite, not weakened or constricted mid-dorsally, with sparse setules and a marginal row of about 18 bristles; spiracle 6 in the membrane near the anterior margin of the tergite, spiracle 7 in the posterior margin, between the lower two marginal bristles. Second genital segment also inverted U-shaped, but broadly vestigial mid-dorsally, devoid of bristles or setulae. Sternites 6 and 7 transverse, slightly broader than sternite 5, with an interrupted row of 8 to 10 marginal bristles; sternite 8 narrower, transversely oval, with two pairs of marginal bristles; sternite 10 subtriangular, sclerotized, densely setose; cerci ordinary, setose; above each cercus are 2-3 strong bristles arranged in a transverse row, each arising from a small sclerotized platelet. Bursa copulatrix without sclerotized thickenings; spermathecae 3, ordinary, oval, dark brown, the walls smooth, with fine spiral thickenings internally.

Distribution.—Plainfield, New Jersey (type); Georgia, Florida, Mississippi and Houston, Texas (Knipling).

Material examined.—College Station, Texas, H. J. Reinhard; McPherson and Chautauqua Counties, Kansas, R. H. Beamer; Wray, Colorado, July 10, 1948, host *Terrapene ornata* (predet. M. T. James); Dauphin and Cumberland Counties, Pennsylvania (larvae in Carnegie Museum); New River, North Carolina, G. & R. Bohart (a mated pair, the female of which is figured); Cuthbert, Georgia, P. W. Fattig; Orlando, Florida, G. & R. Bohart; Hilliard, Florida, J. D. Beamer.

Variation.—The male from Orlando, Florida, has the fourth segment completely dark instead of yellowish, but in other respects agrees with the other material examined.

SUMMARY

Anolisimyia blakeae, new genus and species, is described from flies reared from larvae in a subcutaneous lesion in a chameleon, *Anolis carolinensis* Voigt. Distributional data are given for the turtle parasite, *Cistudinomyia cistudinis*, and the female genitalia of that species is described.

REFERENCES

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- Knipling, E. F., 1937. The biology of *Sarcophaga cistudinis* Aldrich (Diptera), a species of fly parasitic on turtles and tortoises. Proc. Ent. Soc. Wash. 39(5): 91-101.
- Townsend, C. H. T., 1917. New genera and species of American museoid Diptera. Proc. Biol. Soc. Wash. 30:43-50.

NOTE ON THE REARING OF ANOLISIMYIA BLAKEAE, A SARCOPHAGID FLY FROM THE AMERICAN CHAMELEON, ANOLIS CAROLINENSIS VOIGHT¹

(DIPTERA, SARCOPHAGIDAE)

On Monday, the 26th of October, 1953, we were driving home in the general vicinity of Petersburg and Richmond, Virginia, from a trip through the Carolinas when a small American or False Chameleon, *Anolis carolinensis* Voigt, appeared on my shoulder, very green and frightened. Presumably he came from a considerable mass of Spanish moss which we had gathered early that frosty morning in Brunswick Co., North Carolina, about 7 or 8 miles south of Wilmington, on the road to the Orton Plantation, and which was stored in the back of the car. When we reached home we put the lizard in a cloth-covered glass, meaning to take him to the zoo at the first opportunity. During the next 2 or 3 days we put several flies in the glass and he certainly ate one or two of them. Then he began to shed skin on Wednesday or Thursday (he never completed the operation) and became sluggish and did not take any more of the flies. We exhibited him to visitors Friday evening, the 30th of October, and feel pretty sure that he was

¹See page 183.—ED.